SENSORS / SOURCES

Designing a Robotics Vision System, Oct. 1983, Volume 2, No. 9, page 28
Supporting up to 16 cameras, a robotics vision system has been developed using specialized camera and display interfaces.

High Resolution TV Tube for Industrial Inspection, Aug. 1983, Volume 2, No. 7, page 24
Increasing interest in high resolution TV systems has led to the development of a new type of camera tube.

High-Speed Camera System Measures 3D Surfaces, June 1983, Volume 2, No. 5, page 58
By structuring a laser in front of a CCD camera, 3D surfaces can be inspected with high resolution.

Imaging with Microcomputer-Based Systems, Dec. 1983, Volume 2, No. 11, page 52
The availability of low-cost microcomputers provides new systems for image capture and processing.

Imaging with Pyroelectric Detector Arrays, Apr. 1983, Volume 2, No. 3, page 56
Pyroelectric detector arrays have found applications which include laser beam diagnostics, laser spectroscopy, infrared spectroscopy and thermal imaging.

Laser Scanning and Recording Systems, Feb. 1983, Volume 2, No. 1, page 23
As part of our editorial focus, we discussed component constraints, resolution analysis and bandwidth analysis of laser recording systems and listed types and their manufacturers.

Lens-Coupled Intensifier for Low-Light-Level CCTV Cameras, May 1983, Volume 2, No. 4, page 36
By coupling an intensifier to a camera tube, the operating range of the camera can be extended to a low-scene illumination.

Low Inertia Scanners for Electronic Imaging, July 1983, Volume 2, No. 6, page 43
As computer output devices, scanners can be used to convert text and graphics into picture elements which can be manipulated digitally.

Machine Vision Based on Fiber-Optic Imaging, Nov. 1983, Volume 2, No. 10, page 40
Fiber-optics have been used as the sensor in a machine vision system.

MCP-Based Sensors Detect Individual Particles, Mar. 1983, Volume 2, No. 2, page 42
Sensors which couple MCPs with resistive anode plates have been developed to aid low-level radiation detection.

Military Imaging Round Table, May 1983, Volume 2, No. 4, page 19
In March, Electronic Imaging hosted a round table discussion in Washington, DC. Topics discussed included CCDs, CIDs and infrared imaging.

Military Imaging Round Table Part II, Aug. 1983, Volume 2, No. 7, page 62
Part II of Electronic Imaging's round table discusses CCDs, CIDs and MOS devices.

Monolithic Integration of Optoelectronic Devices with GaAs Electronics, Mar. 1983, Volume 2, No. 2, page 28
Integration of both GaAs substrates and LEDs has allowed monolithic opto-electronic modules to be fabricated for use in fiber-optic communicators.

Motion Analysis with High-Speed Video Systems, Dec. 1983, Volume 2, No. 11, page 69
High-speed, stop-motion video systems can be used to provide instant replay of images in applications requiring from 64 to 500 pictures per second.

New Advances in CCD Technology, Apr. 1983, Volume 2, No. 3, page 35
At the 1983 International Solid State Circuits Conference, a complete session was devoted to CCD image sensors. Andrew Wilson reported on current developments in this technology.

Solid-State Imagers Come of Age, Nov./Dec. 1982, Volume 1, No. 1, page 16
CCD technology has now been in existence for twenty years. It is only quite recently it has found its way into such diverse applications as TV sensors and line scanners.

Testing Solid-State Image Sensors, July 1983, Volume 2, No. 6, page 54
Automatic test equipment, now being introduced, will allow rapid testing of solid-state image sensors.

Vision: Human and Electronic, Aug. 1983, Volume 2, No. 7, page 56
Dr. Albert Rose, inventor of the vidicon, discusses the history of electronic and human vision.

Vision Interface Processor Links CCD Cameras to Multibus, Oct. 1983, Volume 2, No. 9, page 77
CCD cameras can be interfaced to the Multibus using an interface processor.

SYSTEMS / APPLICATIONS

Array Processors Find Increasing Applications, Dec. 1983, Volume 2, No. 11, page 44
Array processors are becoming increasingly important to designers who wish to improve the speed of both imaging and graphics systems.

Array Processors in Nuclear Medicine, Nov./Dec. 1982, Volume 1, No. 1, page 24
Architecture, programming and applications of an array processor are discussed as an introduction to the processor's use in nuclear medicine.

Brain and Heart Analysis Using a Microcomputer, June 1983, Volume 2, No. 5, page 26
Scientists at the University of Texas are using computer-generated images for visualizing human brain structures and heart muscle damage.

Computer Facsimile Networks, Oct. 1983, Volume 2, No. 9, page 60
Recent applications of digital techniques to facsimile will offer new computer-based information handling systems.

Computer Graphics Hardware, June 1983, Volume 2, No. 5, page 16
The need to match computer hardware to specific applications has increased dramatically. In this article, Carl Machover discusses some of the current computer graphics hardware available today.

Digital Imaging Subsystems for Microcomputer Applications, Apr. 1983, Volume 2, No. 3, page 43
A digital imaging subsystem architecture is described exclusively for use with CCD based cameras.

Electronic Camera for Photojournalism, Feb. 1983, Volume 2, No. 1, page 71
Recording photographic pictures on magnetic film is now possible. Playback is accomplished on a standard TV screen.

Electronic Vision Systems, Apr. 1983, Volume 2, No. 3, page 16
Electronic vision systems can be used to automatically sense a situation and interpret the resulting data – providing even relatively simple robotic systems a greater degree of flexibility.

Fiber Optics in Computer Graphics Communications, June 1983, Volume 2, No. 5, page 38
With the advent of fiber-optic systems, it is now possible to remote video from RGB terminals to display generators.

Fiber-Optic Technology and Applications, Aug. 1983, Volume 2, No. 7, page 28
Fiber-optic systems are finding increasing applications in areas which require low EMI and high bandwidth.

Images From Space, May 1983, Volume 2, No. 4, page 32
Image processing techniques have been used by observatories to study emissions from galaxies.

Imaging the Brain, July 1983, Volume 2, No. 6, page 20
Quantitative Autoradiography (QAR) and Positron Emission Tomography (PET) can be used to measure both physiological and biochemical processes in the central nervous system.

Incrementally Improving Image Processing Throughput, Oct. 1983, Volume 2, No. 9, page 41
A mass memory for array processors to buffer and access data increases the throughput of image processing systems.

Information Display – Image Perception and Productivity, July 1983, Volume 2, No. 6, page 62
Ergonomically designed workstations may provide savings of up to 8.5% per year in performance time.

Intelligent Image Digitizing Subsystems, Mar. 1983, Volume 2, No. 2, page 14
Greater functionality can now be incorporated into graphic arts systems with the introduction of a new scanning and digitizing system.

Laser Imaging in Graphic Arts, Feb. 1983, Volume 2, No. 1, page 14
Michael Bruno and Tom Dunn look at the progress that has been made in systems for the graphic arts.

Machine Vision – A Systems Approach, Feb. 1983, Volume 2, No. 1, page 32
To overcome the problem of costly stand-alone vision processors, a development system has been introduced which allows application programs to be downloaded into inexpensive stand-alone systems.

Microprocessor-Based Character Generation, Oct. 1983, Volume 2, No. 9, page 18
An 8088-based color character-generator can be used as a peripheral to computer systems.

NCGA'83 & SIGGRAPH '83 Product Preview, June 1983, Volume 2, No. 5, page 46
Two of the premier computer graphics exhibitions were held in June and July. This report highlights some of the products that were on display at the shows.

Networked Systems for Medical Imaging, Apr. 1983, Volume 2, No. 3, page 23
Computer networking will allow the movement of images throughout a hospital to increase efficiency of physicians by allowing localized viewing of image data.

NMR Imaging, Feb. 1983, Volume 2, No. 1, page 57
Part 1 of Electronic Imaging's NMR discussion focuses on properties of atomic nuclei, macroscopic magnetization and imaging with NMR.

NMR Part II – Relaxation Processes, Mar. 1983, Volume 2, No. 2, page 52
In February's issue the basic principles of NMR were discussed. Part II explains the implications and phenomena of relaxation.

SIGGRAPH '83: Ten Years of Computer Graphics, July 1983, Volume 2, No. 6, page 40
In 1983, SIGGRAPH '83 was held from July 25-29. Electronic Imaging previewed the show's technical sessions.

Test Procedures for Raster Scan Displays, Oct. 1983, Volume 2, No. 9
Display test procedures are used to evaluate raster scan display performance.

Three-Dimensional CAD for Craniofacial Surgery, May 1983, Volume 2, No. 4, page 48
Using software originally developed to design the F15 fighter has allowed surgeons to recreate models of the human skull.

Ultrasonic Imaging in Medicine, July 1983, Volume 2, No. 6, page 36
Recent advances in piezoelectric arrays coupled to computers have led to a millimeter resolution throughout the operational depths of the body.

Video Displays Film Disc Images, Feb. 1983, Volume 2, No. 1, page 40
Transferring disc images to the television screen has been demonstrated by Kodak.

PROCESSING

Architectural Considerations for Image Processing Systems, Nov. 1983, Volume 2, No. 10, page 50
Trade-offs between hardware and software are required to optimize system performance.

Array Processor Boosts Microcomputer Performance, Oct. 1983, Volume 2, No. 9, page 54
Writing assembly routines in a C-type language allows rapid development of applications for a new array processor.

Bitmapped Terminal Supports Multiple Display Applications, Mar. 1983, Volume 2, No. 2, page 20
Implementing graphics functions in microprocessor software on a single PCB has simplified graphics terminal design.

Color Video Digitizer Acquires Images From RGB Cameras, Aug. 1983, Volume 2, No. 7, page 39
A three-channel digitizer can be integrated with other Multibus-based boards to form a complete imaging system.

Digital Processing of Terrain Elevation Data, Aug. 1983, Volume 2, No. 7, page 36
Processing of digital elevation data from photographic and cartographic studies will allow easier analysis and compilation of map data.

Digital Signal Processing Techniques Compensate for Video Anomalies, Nov./Dec. 82, Volume 1, No. 1, page 28
Imperfections of sensors and associated optics can be automatically calibrated by using fast ADCs and digital processing.

Display Controller Allows Fast Graphics Generation, June 1983, Volume 2, No. 5, page 62
Incorporating display oriented computing power into graphics workstations has allowed computationally-intensive display functions to be off-loaded from the host computer.

Graphic Processor Speeds Generation of High Resolution Images, Oct. 1983, Volume 2, No. 9, page 34

A graphic processing system transforms solid objects such as polyhedra into matrix images suitable for raster display.

Graphics System Combines VLSI and UNIX, Dec. 1983, Volume 2, No. 11, page 28
A graphics workstation incorporates a proprietary VLSI IC, a general purpose microprocessor and a raster subsystem.

Hybrid Video DACs Simplify Graphics Terminal Design, July 1983, Volume 2, No. 6, page 66
High-speed converters and RAMs in a single hybrid package can save both PCB space and test time.

Image Enhancement Using an Image Processor, June 1983, Volume 2, No. 5, page 52
Enhancement operators can be used to increase information content of an image and produce a more visually pleasing result.

Image Processing in Microscopy, Dec. 1983, Volume 2, No. 11, page 77
Improving and analyzing gray level images from scanning electron microscopes is now possible with a pipelined image processing system.

Microchannel Plate Detectors Aid Low-level Radiation Detection, Feb. 1983, Volume 2, No. 1, page 44
Originally developed for military night vision systems, the microchannel plate is finding its way into oscilloscopes and ultraviolet instruments for space astronomy.

Monolithic Video DAC for Digital Display Systems, Apr. 1983, Volume 2, No. 3, page 62
One of the most critical interfaces in image processing systems is the video DAC. The design of these ICs are being improved for higher resolution and faster frame writing speeds.

Monolithic Video-Sync Stripper Also Decodes Sync Pulses, Nov./Dec. 1982, Volume 1, No. 1, page 20
A single-chip monolithic IC has been developed which performs DC restoration, video-sync separation and sync-pulse decoding.

Multibus Array Processor Uses 29116 to Speed Computations, May 1983, Volume 2, No. 4, page 44
Using AMD's 29116 bit-slice processor, a single-board array processor has been developed. Applications in image processing are discussed.

Thermal Image Processing Using a Microcomputer, May 1983, Volume 2, No. 4, page 24
Digitizing real time thermal data and storing it on disk provides a means for acquisitions, evaluation and storage of thermal image data.

Two Board Controller Simplifies Terminal Design, Nov./Dec. 1982, Volume 1, No. 1, page 56
Lack of software compatible with any CPU has impeded many terminal projects. To solve this problem, a new controller has built-in low level software.

Video Signal Processing Improves SNR, Mar. 1983, Volume 2, No. 2, page 36
Multibus boards are becoming increasingly popular. With the introduction of three new graphics boards, a variety of image processing functions can be performed.

VLSI Coprocessor Delivers High Quality Displays, April 1983, Volume 2, No. 3, page 50
Intel has used VLSI technology to introduce a text coprocessor specifically tailored to execute data manipulation and graphics display tasks.

VLSI Display Controllers Simplify System Integration, Feb. 1983, Volume 2, No. 1, page 48
Five companies have or are about to introduce display controllers which will considerably reduce the number of ICs needed to build graphics terminals.

Workstation Supports Dual Processors, Nov. 1983, Volume 2, No. 10, page 37
Incorporating both floating point and array processors will allow rapid image transformations in CAD/CAM applications.

SOFTWARE

Core Graphics: New Tools for the Micro System Builder, Apr. 1983, Volume 2, No. 3, page 28
The Siggraph Core System creates a portable software environment by using a hypothetical computer concept – a pseudo-machine.

A System Builder's Approach to Image Processing, Nov./Dec. 1982, Volume 1, No. 1, page 48
Instead of relying on special hardware, a system has been developed using a high-speed bipolar processor to implement a set of imaging and graphic functions.

Software for Interactive Image Processing, Nov. 1983, Volume 2, No. 10, page 26
Integrating image processing hardware with a 68000-based computer provides the basis for a stand-alone image processor.

Terrain Modeling Techniques, Dec. 1983, Volume 2, No. 11, page 20
Terrain modeling techniques are used extensively in flight simulation, seismic exploration and military intelligence.

MEMORIES

Disk Drives Store Digital Radiographic Images, Nov./Dec. 1982, Volume 1, No. 1, page 39
Houston's Hermann Hospital is now using a digital radiographic image processing system which improves upon standard X-ray systems.

E^2PROMs: The Memory Choice For Robotics Systems, June 1983, Volume 2, No. 5, page 42
Self-adaptive robotics system design will become simpler with the introduction of new 5V-only E^2PROMs.

Evaluating Magnetic Recording Disks, Nov. 1983, Volume 2, No. 10, page 20
With the increasing density in magnetic disks, novel testing methods are being developed to test them.

Micrographic Disc Storage of Images and Data, Aug. 1983, Volume 2, No. 7, page 20
Combining both computer and micrographics technology has allowed the development of an optical disc storage system for both data and images.

Optical Storage Technology: Developing Slowly, May 1983, Volume 2, No. 4, page 28
The introduction of a direct read-after-write optical disc will allow up to 5000M bytes of information to be stored on a single surface.

Time on Film, Feb. 1983, Volume 2, No. 1, page 28
Applying a magnetic coating to motion picture film has simplified post-production by allowing a time code to be recorded on the film as it is exposed.

Using 64k DRAMs in Graphics Applications, Nov. 1983, Volume 2, No. 10, page 62
Fast dynamic 64k RAMs are now replacing 16k RAMs in many graphics applications.

PRODUCT INDEX

Boldface indicates advertised products, while regular type represents new products and literature.

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